Competition in the Promised Land: Black Migration and Northern Labor Markets, 1940-1970

Leah Platt Boustan*
Harvard University
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Abstract: Relative black economic performance stagnated in the North after World War II, a period of otherwise significant racial convergence. This paper asks to what extent the economic disappointment of the North can be explained by on-going migration of southern blacks. The migration represented a considerable supply shock to the labor markets above the Mason-Dixon line, particularly to low-skilled labor markets in urban areas that employed many already-resident black workers. I use variation in migrant flows between cities to evaluate the impact of black arrivals on low-skilled male workers by race, and by industry. To account for migrants' endogenous location choices in the North, I develop an instrument for black migrant flows into a northern city, using southern agricultural variables ("push" factors) weighted by the state-of-birth profile of a city's black migrant stock. While there is no evidence that the migration depressed wages for low-skilled workers in the North, it appears to have had a large effect on their labor force attachment, both in terms of employment rates and weeks worked. The migration of southern blacks can account for a quarter of the black-white employment gap in the North during this period.

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I. Introduction

Between 1915 and 1970, over five million African-Americans left the South for cities in the North and West, with the bulk of this movement occurring during and after World War II. The impact of the exodus from the rural South – often called the Great Black Migration – on black economic advancement in the aggregate has been studied extensively.[1] However, our understanding of how this substantial migrant flow affected the *receiving economies* in the industrial North/West is far less complete. Black migrants represented a substantial increase in the labor supply above the Mason-Dixon line, particularly in urban areas and in certain low-skilled industries. How did this sustained migration affect the earnings and employment opportunities of workers in northern labor markets? Did the competitive pressure from new black arrivals disproportionately harm existing black workers, as the sociological literature has suggested, or did it have a comparable impact on all low-skilled workers, regardless of race? The inclusion of a rich set of economic variables in the US Census beginning in 1940 permits an exploration of these relationships for the second wave of this migration flow.

In particular, the ongoing migration may help explain why black economic outcomes stagnated in the North during an era otherwise marked by racial convergence. Save for 1940s, a decade of post-War expansion and general wage compression, the ratio of black to white wages decreased in the North throughout this period.[2] In the South, by contrast, this ratio increased dramatically both in the 1940s and in the 1960s. Table 1 presents the mean weekly wages and

[1] See Smith and Welch (1989), Donohue and Heckman (1991) and Farley and Walter (1987). Smith and Welch, for instance, document that migration from the low wage South after World War II increased relative black wages by 11 to 19 percent (depending on labor market experience level), which accounts for around a third of racial wage convergence during the period. As they acknowledge, however, it is difficult to assess how much of the northern wage premium is a true gain, and how much is due to regional differences in cost-of-living or amenities, or to unobserved skill differences between migrants and non-migrants.

[2] Maloney (1994) finds that roughly half of black-white wage convergence in the 1940s is due to general wage compression, as opposed to race-specific increases in wage offers or occupational distribution.

employment rates for men aged 18-65 in the civilian labor force by race, region of residence, and decade.[3] In the 1960s, the ratio of black to white wages rose from 52.6 percent to 58.4 percent in the South, while declining in the North from 72.4 to 71.6. Donohue and Heckman (1991) credit this pattern to federal pressure on the southern Jim Crow economy. While the Civil Rights movement, and the resulting labor market reforms, are no doubt an important part of this story, some of the regional disparity in black advancement may also be due to the dynamics of migration. Migration not only brought a flow of low-skilled African Americans to the North, but may have exerted downward pressure on the wages of existing black workers. Blacks also faced consistently low employment rates in the North during this period. Only 82 percent of blacks in the northern labor force were employed in 1940, at the end of the Depression decade, compared to 90 percent of northern whites. White male employment had climbed to 96 percent in 1950 and remained so in 1960, while black employment continued to hover at 90 percent. In contrast, southern blacks were employed at rates not far below their white counterparts throughout this period. Again, the influx of southern blacks, many of whom arrived with skills similar to those of the existing African-American population, could have "crowded out" other black workers.

To identify the impact of black migration on wages and employment rates in the North and West, I rely on variation in migrant flows across local labor markets.[4] Despite the common association of the black migration with a few main destinations – e.g., Chicago, Detroit – the relative ranking of cities within states/regions as destinations for black migration changes

[3] Weekly wages are measured here for men with non-zero earnings. However, it is important to keep in mind that, throughout this period, black men withdrew from the labor force in larger numbers than white men. To the extent that workers with the lowest earnings potential are most likely to withdraw from the labor market, the wage gaps presented here represent upper bounds. For a summary of the literature on selective withdrawal and its impact on the measurement of wage convergence, see Chandra (2000).

[4] I collectively refer to receiving labor markets as the North/West, a region which incorporates the following census divisions: New England, the Mid-Atlantic, the East North Central, the West North Central, the Mountain states, and the Pacific. Somewhat unconventionally, it also includes Delaware and Maryland which, despite their history of slave holding and other characteristically southern attributes, experienced dramatic black in-migration from 1900 to 1970.

substantially over time. As an illustration, Table 2 records the migration flow into eight cities in California in two periods of the second wave, 1940-1949 and 1950-1969. The flow of migrants is measured by changes in the share of the city's population made up of black southern migrants. As was true of the West more generally (but not of other regions, like New England and the Mid-Atlantic), the flow of black migrants to California peaked in the 1940s. The mean increase in the black migrant share among California cities in the 1940s was 2.2 percent, but was only 0.2 percent in the 1950s and 60s. The destinations of African-American migrants to California also changed over time, with northern cities, including San Francisco, Fresno and Stockton, though surprisingly not San Jose, attracting more migrants in the 1940s, and southern cities (Los Angeles, San Diego) experiencing larger migration flows in the 1950s and 60s.

As the pattern of migration to California makes clear, migrants are attracted to growing and/or economically prosperous areas. In the 1940s, black migrants preferred San Francisco, which boomed as a manufacturing and transport center for the Pacific theater, and in the 1950s and 60s they chose the expanding Los Angeles. To address migrants' endogenous location choices, I develop an instrument that predicts in-migration to a northern/western labor market based on *southern* push factors, weighted by the state-of-birth profile of the black migrant stock in that area. The validity of this procedure rests upon three features of the black migration experience: (1) black migration followed distinct "grooves" from particular southern states to specific cities in the North/West, due to the strength of family and community networks (Grossman, 1989), (2) the black out-migration rate from a given southern state was sensitive to local agricultural conditions, including the degree of mechanization and the structure of social relations in farming (Fligstein, 1981), and (3) southern regions experienced agricultural transformations at different points during this period (Wright, 1986). In particular, I use

information from the Census of Agriculture on two relevant aspects of the southern economy to predict migrant flows: the cotton percentage of a state's agricultural base and the tenancy rate among black farmers. I use lagged values of these variables as instruments to avoid the problem of reverse causality; namely that black migration out of a state might result in a reorganization of agricultural production.

This empirical strategy is predicated on the assumption that the effect of a migration shock to a particular labor market is confined to that area, rather than diffusing throughout the economy as complementary (substitutable) forms of labor and capital enter (leave) the region. This emphasis on geographic variation corresponds with the contemporary concern of Gunnar Myrdal, among others, about the "extreme concentration [of black migrants] in a few Northern cities," despite a sufficiently attractive level of "industrial activity [in] many of the smaller cities of the North" (Myrdal, 1962, *ori. pub.* 1944, p. 189-190). Myrdal worried that southern migrants would saturate certain areas to the detriment of the local labor market, while leaving others areas relatively unaffected. This paper provides some empirical confirmation that Myrdal's concern was justified, and that, at least from the perspective of economic advancement, the black migration was spatially sub-optimal.

However, a growing skepticism among labor economists about whether, in the presence of geographic mobility, cities can truly be considered separate labor markets has cast doubt on this econometric framework. Borjas (2003) argues that reactions to migration shocks occur rather quickly, and may account for the fact that studies of immigration flows based on spatial variation tend to find small, insignificant effects on the economic outcomes of natives. He develops a new method for identifying the causal effect of immigration on native outcomes, dividing the economy not according to geography, but into skill groups, defined by education and work

experience. For the sake of comparison, I present a similar set of results in Appendix A, which treat the North/West as a single economy. Unlike Borjas, I find smaller, less precise effects with this approach. The disparity may be due to the fact that formal education is less informative about a worker's true "skill group" during the mid part of the 20th century than at its end, particularly for black southern migrants.

In the next section, I review the history of African-American migration, and consider its possible effects on receiving labor markets. In particular, I highlight reasons why the migration may have differentially affected black workers. Section III defines samples of low-skilled workers residing in northern/western labor markets from individual Census records. In section IV, I discuss the econometric procedure and the instrumental variables method. Section V presents results, and Section VI concludes.

II. Potential Effects of Black Migration on Northern and Western Economies

The Great Black Migration began in 1915, with the advent of war simultaneously increasing the demand for industrial labor in the North and cutting off the steady stream of immigrant workers from Southern and Eastern Europe. Before that time, movements of the African-American population were largely confined to the South, with freed slaves participating in the Oklahoma land rush (1889) and leaving the Carolinas and Georgia for the richer land of the Mississippi Delta. Moving west along the line of latitude allowed black farmers to make use of their accumulated agricultural knowledge (Grossman, 1989, p. 23-26). After the Civil War, African-Americans also moved to the South's growing cities; the urban population among southern blacks increased from 6.7 percent in 1890 to 22.0 percent in 1910 (Myrdal, 1962, p. 183). Figure 1 illustrates the net black migration to the North/West from 1900 to 1970, both in levels and as a

percentage of the existing population. In absolute terms, black migration to the North/West peaked during World War II, and remained high through the post-War period. Over one million African-Americans left the South in each of the 1940s, 1950s, and 1960s, a tide which abated, and even reversed, by the 1970s. Expressed as a percentage of the northern population, the migration has two clear peaks, one after World War I and another after World War II. The in-migration rate reached nearly one percent of the existing northern population in the 1920s, halved during the Depression, only to bounce back in the 1940s and remain above one percent until 1970.

Economists have long been interested in the "puzzle" of why blacks did not move northward sooner, given the tremendous wage gaps between North and South, and the promise the North held for political (and perhaps even social) equality.[5] Collins (1997) makes a convincing case that prospective black migrants were crowded-out of northern industrial jobs by European arrivals. He argues that if immigration quotas had been established in 1900, rather than in 1924, another 150,000 African-Americans would have moved northward in that decade, in addition to the 161,000 who actually made the journey. Once black out-migration from the South began, coinciding with the first World War, it rapidly accelerated and remained at high levels until around 1965, with the exception of the Depression decade of the 1930s. William Carrington, Enrica Detragiache, and Tara Vishwanath (1996) attribute this pattern to the multiplier effect of social and informational networks, which reduce migration costs for the next cohort, sustaining migration even after the initial demand for workers subsides.

For all the attention paid to the determinants of the black migration – including such "push" factors as the boll weevil infestation of the 1920s (Higgs, 1976) and the slow collapse of

[5] This puzzle was most famously framed by Myrdal (1944, p.193), and has been considered since by Wright (p. 71-78) and Margo (1990, p. 126) among others.

sharecropping in the southern agricultural economy (Fligstein, 1981), as well as the "pull" of Northern industry (e.g., Vickrey, 1977, Gill, 1979) – much less in known about the *effect* of this sustained influx on receiving economies in the North/West. In particular, this paper is concerned with the potential impact of sustained migration on relative economic performance of black and white men. To fix ideas, it is instructive to consider the question in the context of a simple model of a local labor market with skilled and unskilled labor. Southern black migration represents an outward shift in the supply function of unskilled labor, which leads to an unambiguous decrease in the wages of substitutable workers.[6] Furthermore, while the overall employment of unskilled workers increases, the decrease in the wage may induce some northern workers to withdraw from, or reduce their hours in, the labor force.[7] The impact of black migration on the returns to skilled labor depends on whether southern black labor was complementary to or substitutable for skilled labor in production.

In this framework, the arrival of black migrants affects all substitutable workers equally, regardless of race. Yet, even in such a "color blind" economy, the southern influx may have had a disproportionate impact on existing black workers because of their lower average levels of education and concentration in low-skilled work. In 1940, 81 percent of working age black men native to and residing in the North had less than a high school degree, compared to 68 percent of white men. By 1970, the average education level for men of both race increased, but the racial gap remained; 53 percent of black men and 35 percent of white men in the North were not high school graduates in 1970. Furthermore, northern black workers were more likely than *similarly skilled* whites to be employed in industries heavily populated with black southern migrants. This

[6] This partial equilibrium result ignores the fact that migrants increase the demand for local goods, and thus shift out the demand for labor. The countervailing effect on wages and employment could be large if most goods are produced and consumed locally.

[7] The theoretical effect on hours worked is indeterminate, and depends on whether the price effect or income effect of the wage cut dominates.

pattern could be due either to racial barriers to entry in certain industries (e.g., those dominated by craft unions), or to common industry-specific skills held by first- and second-generation black migrants from the South.

Table 3 demonstrates the industrial overlap between black southern migrants and northern-born blacks in 1950; for comparison, it also considers northern-born whites, and southern-born whites living in the North. I restrict all groups to men with less than 12 years of schooling.[8] The first column of Table 3 presents the black migrant share of the male workforce in the ten two-digit industries with the highest and lowest migrant share in 1950. High migrant-share industries are concentrated in the service and basic manufacturing sectors. Represented services include those commonly provided by black workers to the white community (private household, hotels and lodging), as well as those provided within black neighborhoods (real estate). The manufacturing industries are similarly low-skilled, including primarily metal industries and tobacco products. By contrast, the low migrant-share industries include high-skilled services (insurance, legal), as well as many rural enterprises (fisheries, mining).

Columns 2 through 5 of Table 3 report the percentage of each group in question (black/white, northern-born/southern-born) employed in the represented industries. Blacks native to the North/West have very similar industrial distributions to black arrivals from the South. The ten most migrant-intensive industries account for 37 percent of native black employment, compared to 41 percent for black southern migrants themselves. In contrast, these industries employ only 24 percent of native northern or western whites. White southern migrants fall in the

[8] The mean years of competed schooling in this sample are, respectively: southern-born blacks (6.6 years), northern-born blacks (7.6 years), southern-born whites (7.7 years), and northern-born whites (7.9 years). All three northern samples seem like reasonable groups of substitutable workers based on education levels alone.

middle; 31 percent of white southern migrants are employed in the top ten migrant-intensive industries.

To capture changes in the degree of industrial overlap – and thus, perhaps, the degree of substitutability – over time, Table 4 presents estimates of an index of labor market competition proposed by Altonji and Card (1991). The index calculates the average proportional increase in labor supply for a northern group associated with a fixed number of new black migrants (under the assumption that recent black migrants follow the same industrial pattern as the current migrant stock).[9] Values above one indicate that a particular group is more than proportionately affected by any migrant-induced increase in the total labor force, assuming a reasonably high cost to switching industries. The figures in Table 4 indicate that the racial divergence in industrial distributions was highest in 1940 and fell relatively consistently until 1970. A one percent increase in the labor force due to black migration (a typical magnitude for cities in this period) increased the relevant labor pool by 1.6 percent for low-skilled, northern-born blacks in 1940, but by only 1.3 percent for low-skilled, northern-born whites. By 1970, black migration appears to have affected northern-born blacks and whites equally (index values = 1.56 and 1.52 respectively); in fact, southern-born whites had the largest industrial overlap with black migrants in 1970. In sum, low-skilled northern-born blacks were employed in a set of industries substantially similar to their southern counterparts, and thus may have suffered the largest economic setback from the ongoing migration. However, there is little reason to believe that low-

[9] The index is constructed as follows: Let S_{Ni} be the share of native group N employed in industry *i*, E_i the initial level of total employment in industry *i*, and ΔE_i the increase in industry *i* employment associated with a fixed number of new black migrants. Then the average proportional increase in labor supply experienced by native group N is: $\Sigma_i S_{Ni} (\Delta E_i / E_i)$. This sum can be re-expressed as: $(\Sigma_i S_{Ni} S_{Mi} / S_i) (\Delta E / E)$, or $\beta (\Delta E / E)$, where S_{Mi} is the share of migrants employed in industry *i*, S_i is the share of total employment in industry *i* and E is initial level of total employment in the economy. β is thus an index of the degree of industrial overlap, or the labor market competition, between black migrants and workers in group *i*.

skilled white men were shielded from the influx of black workers, and as we will see below the evidence suggests that they were affected by the migration to much the same degree.

To this point, the impact of low-skilled black migration has been considered in the context of a race-blind economy. In this framework, northern black workers would only have experienced the brunt of the impact insofar as they, themselves, tended to be low-skilled, and work in similar industries as the new arrivals. However, it is not implausible that northern employers were conscious of the race of their workforce, and took race into account when making hiring and salary decisions. Urban sociologists Stanley Lieberson (1980) and William Julius Wilson (1987) have suggested that new waves of migration caused white employers to negatively revise their perception of African-Americans *as a group* by continually lowering the mean level of skill, education and "northern-ness" of the black community. This argument, essentially one of statistical discrimination, depends on the inability of white employers to form separate judgments about black workers based on their place of origin. If, as with West Indian immigrants today, employers could distinguish between northern- and southern-born blacks based on accent or dress, it is unclear whether the arrival of new migrants would have adversely affected native black workers through this channel.[10]

Despite this note of skepticism, it would be worth testing empirically whether the Great Black Migration led to heightened statistical discrimination against black workers in the North. The presence of statistical discrimination predicts that the black migration would have a negative effect on the wages or employment outcomes of black workers with whom they did not compete directly—e.g., those with a high school or college degree. The available narrative evidence suggests that, consistent with Wilson and Liebseron's story, middle-class northern blacks were concerned about the influence that low-skilled black southerners had on perceptions of blacks as

[10] For a discussion of employers' views of West Indian vs. African-American workers today, see Waters (1999).

a group. The Chicago *Defender* (one the largest black newspapers at the time), anxious to dispel what it saw as growing prejudice against black workers, published "dos and don'ts" lists intended to break southerners of their rural habits and help them adjust to city life; these admonitions included such occupational advice as "don't abuse or violate the confidence of those who give you employment" and "don't leave a job when you have a few dollars in your pocket" (Grossman, 1989, p. 145). Grossman rightly interprets these lists not only as helpful advice but also as an indication that "black Old Settlers considered themselves vulnerable to stereotyped images dominated by visible outlandish newcomers" (Grossman, 1989, p. 144).[11] Unfortunately, the available Census data is not rich enough to speak to this hypothesis. In 1940, for example, only 14 percent of blacks living in the North or West had 12 years or more of schooling. Further stratifying this population by local labor market would leave few, if any, areas with a large enough sample about which to say anything meaningful.

While I am unable to speak to the presence of statistical discrimination, the remainder of this paper will assess the impact of black migration on the economic outcomes in the low-skilled labor market. I begin by estimating the impact of the new arrivals on low-skilled workers as a whole. I then ask whether the migration had a differential effect on low-skilled workers by race. These estimates, along with the prevailing skill distributions for black and white men during this period, allow me to quantify the effect of migration on the black/white gap in wages and employment in the North/West.

[11] The concern that recent arrivals will reflect poorly on the existing community is common among American immigrant groups (e.g., the negative reception of eastern European Jews by established German-Jewish congregations).

III. Data and Definitions

To estimate the impact of black migration on low-skilled workers, I rely on variation across local labor markets, defined by SMSAs. This section will discuss the use of micro Census data from the Integrated Public Use Micro Sample (IPUMS) to construct SMSA-level economic outcomes for various samples of northern/western workers. In particular, I consider the employment rates and weekly wages of low-skilled men classified by race, industry, and migrant status (effectively: region of birth). I also describe the method used to measure southern black migrant flows into SMSAs by decade.

I use SMSAs to approximate local labor markets in the North/West. SMSAs were designed to represent a coherent local economy, including a city (or cities) of at least 50,000 residents, and its surrounding counties. One drawback to using SMSAs as the unit of analysis is the need to omit data from the 1960 Census, which does not identify an individual's location beyond his/her state of residence. Another concern is that SMSA boundaries can change over time. While the definitions are nearly identical in 1940 and 1950 (the concept of an SMSA having been retrojected onto the 1940 data in the IPUMS), the boundaries of some SMSAs expand in 1970. I redefine the borders of SMSAs to correspond over time whenever possible, but the lack of sub-SMSA identifiers in the micro data makes this an imperfect process at best.[12] In the end, while in-migration may be positively correlated with the likelihood that an SMSA expanded, this relationship is unlikely to introduce a systematic bias unless labor market outcomes are consistently better/worse in outlying counties.

[12] I was able to implement the following changes to unify SMSA definitions across the decades: (1) in 1940/50, I divided the New York City SMSA into the New York and New Jersey sub-components and in 1970, I combined the Bergen, Jersey City and Newark SMSAs to constitute the New Jersey half; (2) in 1970 I combined Gary, IN and Chicago, IL to form the Chicago SMSA and Anaheim and Los Angeles to form the Los Angeles SMSA; (3) in 1970, I excluded a series of outlying counties from the Indianapolis, Milwaukee, and Seattle SMSAs.

Within each SMSA, I begin with the sample of low-skilled men (that is, those with less than twelve years of education) who are "native" to the North/West. I further limit my attention to the civilian, non-institutionalized population between the ages of 18 and 65 who are not in school. Within this base group, I begin with a mixed-race sample subdivided by industry of employment. Industries are classified as high/low migrant share based on the southern black representation in their workforce in 1950. I then consider full samples of low-skilled black and white men, regardless of industry. Finally, I introduce a sample of men who were likely not competitive with black migrants: white, northern-born men with 14 or more years of schooling.[13] This sample operates like a "placebo" in a medical experiment; the arrival of black migrants should not negatively affect the economic outcomes of this group, so any negative correlation can be seen as the presence of bias (e.g., an important omitted variable).

For each sample, I construct two sets of dependent variables: the logarithm of weekly wages for individuals who report positive earning,[14] and the employment rate, conditional on being in the labor force. Wages are reported in 1999 dollars. I adjust each mean outcome at the micro level for differences in educational distribution and age structure. In particular, I regress each outcome against a flexible function of education, age, and a full set of SMSA dummies.[15] The coefficients on the SMSA dummies – or, rather, changes in these coefficients over a Census period – then become my regression-adjusted outcome measures.

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[13] Another possibility would be to limit this "placebo" group to men with 16 or more years of school. However, because of the sample-line restriction in 1950, which limits the number of individuals in 1950 with reported education, this cutoff greatly reduces the sample of SMSAs. (The sample-line restriction is described in more detail on the next page). A cutoff of 14 years excludes men who took an extra year to complete high school, thus finishing in 13 years, leaving only those men with at least one year of post-secondary education.

[14] Weekly wages are defined as annual earnings from wages and salary divided by weeks worked during the year. I exclude the self-employed because the 1940 census does not report business or farm income. The 1970 Census reports weeks worked within certain intervals; I assign to each worker the midpoint of his interval.

[15] The specification includes four education categories (0-5 years, 6-7 years, 8 years and 9-11 years), a cubic polynomial in age, a full set of age-education interactions, and, where applicable, a region of birth dummy. This methodology follows Altonji and Card (1991).

Table 5 reports basic characteristics (age, education) and unadjusted means of the dependent variables for the four samples of low-skilled men pooled over the three decades. The table also lists the number of SMSAs that can be identified by group in each year. The Census Bureau identified 98 northern or western SMSAs in 1940 and 1950.[16] Because of stricter confidentiality requirements, only 71 such SMSAs are identified in 1970. I restrict the analysis to SMSAs that have at least 20 men who meet the sample criteria. This restriction is non-binding for the samples of white men, and men in high migrant-share industries. However, the number of admissible SMSAs drops for the remaining three samples, with the most severe case being black men, for whom only 34 SMSAs can be identified in 1940/50 and 48 in 1950/70.

A series of other complications with the black sample should be noted here. One major limitation of micro Census data during this period is the "sample line" restriction in 1950. In that year, only 20 percent of the population, designated as sample line individuals, was asked a full battery of questions; the remainder was asked to fill out a smaller questionnaire, which did not include completed schooling or the components of weekly wages (annual earnings and weeks worked during the year). For black men, who are already a relatively small group in the North/West, this restriction renders sampling defined by education infeasible in 1950.[17] For consistency, then, I include *all* black men in the sample regardless of educational attainment in every decade.[18] As a result, the black sample is better educated than any of the samples of low-skilled men, with an average educational attainment of 9.3 years over the period compared to 7.9-8.1 years (see Table 5). Furthermore, only sample-line individuals are asked to report their

[16] Five SMSAs are excluded because their population is partially southern. These are: Cincinnati OH/KY/IN, Evansville IN/KY, Louisville KY/IN, Washington DC/MD/VA and Wheeling WV/OH.
[17] Only 21 SMSAs have 20 or more sample-line black men with less than 12 years of education in 1950.
[18] Note further that I cannot adjust the employment rate for differences in the educational distribution across SMSAs in these two samples. Regression-adjusted means correct for age distribution and region of birth only.

annual earnings and weeks worked, so I am unable to construct measures of weekly wages for the sample of black men.[19]

In addition, due to constraints on sample size, I am not able to limit the sample of black men to "native" blacks born in the North, but instead include all blacks living in the North/West, regardless of birthplace. 55 percent of black men living in the North/West during this period were southern-born.[20] By including southern-born men, one can no longer distinguish between a causal effect of new migration on the economic outcomes of other blacks, and compositional changes in the black population due to southern migration. If recent southern migrants have lower employment rates than their northern-born counterparts, the compositional change could induce a negative relationship between employment and migration.

It is well-established that the *stock* of southern-born blacks living in the North/West during this period had, if anything, stronger labor force attachment and higher wages than their northern-born counterparts, despite their lower levels of education.[21] However, one might expect the *flow* of new migrants to fare worse than their established counterparts. Recent black arrivals from the South can be identified in the 1940 and 1970 Censuses with information about an individual's state of residence five years prior. Table 6 reports age-adjusted mean differences in

[19] To correct for this omission, I tried culling information on the median annual earnings by race and by SMSA/county from published Census data. Published data on earnings are not available at this level of detail in 1940. I collected such information in 1950, 1960 and 1970, but the data are limited in a number of ways: not only is it impossible to separate migrants from non-migrants, or individuals with or without a high school degree, but one cannot even separate male from female earnings. Earnings by race, gender and SMSA/county exists in 1950 and 1960, but not in 1970. I attempted to adjust for these shortcomings by including aggregate statistics (e.g., female percentage of the black workforce, age composition) in the regressions as controls. In the end, I chose not to include these results in the body of the paper because, despite my best efforts, there was never a significant relationship between black migration and this highly compromised measure of annual earnings in an OLS or IV setting.

[20] It has been suggested that one could remove from the sample of black men those who are recent arrivals to the North (i.e., within the past 5 years). This is true of the 1940 and 1970 Census samples; however, the 1950 Census only asks about moves within the past year.

[21] This pattern was first documented by Long and Heltman (1975), and has been noted since by Smith and Welch (1989), and Margo (1990, p. 121-127) among others. Most scholars have attributed this finding to the fact that migrants are often positively selected for certain unobserved traits (i.e., determination, native intelligence) that may have been more highly rewarded than formal education in some low-skilled service and manufacturing jobs at the time.

employment rates and weekly wages for blacks living in the North/West by region of birth and migration status (recent/not).[22] Consistent with the previous literature, the stock of southern-born black men living in the North/West have higher weekly wages and statistically indistinguishable employment rates from native-born blacks (the exception is 1950, when the mean southern-born employment rate is 1.7 percentage points lower). More importantly, recent arrivals have higher employment rates than *either group* of established blacks in 1940 and 1970, though this difference is not statistically significant. They also have significantly higher weekly wages than northern-born blacks in 1970. Thus, it appears that including the southern born in my sample should not bias the results toward finding a negative effect of the migration on northern outcomes.

Finally, before turning to the estimation procedure, I will discuss the method used to measure the black migrant flow into an SMSA over a Census period. Studies of international immigration typically employ aggregate counts of the foreign-born by city to establish the size of the immigrant stock in a particular location. Changes in the foreign-born percentage of the population are then used to approximate the flow of new migrants. This procedure has the benefit of being a full population count, thus avoiding most sources of measurement error. Its drawback, however, is that the foreign-born as a percentage of the whole population will decline whenever fertility outstrips in-migration. In the case of the black migration, for instance, the southern-born percentage of the black population residing in the North declined from 65 percent in 1950 to 44 percent in 1970 despite the arrival of over 2 million African-Americans from the South during that period. Thus, when the standard migration measure is replicated using the IPUMS, it appears

[22] I do not adjust these means for differences in education levels between recent/long-term migrants in order to conform to the dependent variables I use for the sample of black men, which cannot be education-adjusted due to the 1950 sample line restriction.

as if southern blacks *left* many cities in the North/West in the 1960s and 1970s.[23] Thus, to avoid confounding migration with other demographic events, I use IPUMS data to measure changes in the black, southern share by SMSA of an age cohort over time ($\Delta f_{it, t-1}$). The age cohort is chosen to represent the working age population. In particular, I compare individuals aged 10-40 in 1940 with those aged 20-50 in 1950, or individuals aged 10-30 in 1950 to those aged 30-50 in 1970. I limit my attention to individuals under the age of 50 to minimize variation due to differential mortality by region of birth.

VI. Estimation

This section begins by establishing the simple relationship between in-flows of black migrants and changes in the economic outcomes of low-skilled men. The underlying experiment compares otherwise equal cities that received different patterns of migration under the assumption that these migration flows were unrelated to economic opportunities for low-skilled workers. However, it is reasonable to believe that black migrants sought out cities with higher wages or a lower incidence of unemployment, a would induce a positive relationship between the size of a city's black migration flow and the economic outcomes of its low-skilled workers. To address this concern, I introduce an instrumental variable procedure intended to identify variation in black migration across northern SMSAs due to southern agricultural factors alone.

Ignoring, for the moment, the issue of endogenous location choice, I start with the following equation, to be estimated using ordinary least squares (OLS):

[23] I am unable to follow the standard procedure using published data because the Census Bureau does not report the needed information on internal migration in any year except 1940 (and then only for the 36 northern cities – which together comprise 31 SMSAs – with the largest black populations).

$$\Delta \hat{Y}_{ijt,\,t-1} = \alpha + \beta\, \Delta f_{it,\,t-1} + \delta_t + \nu_j + (\delta_t \times \nu_j) + \varepsilon_{ijt.} \qquad (1)$$

$\Delta \hat{Y}_{ijt,\,t-1}$ is the change in an adjusted labor market outcome for SMSA *i* in state *j* between either 1940 and 1950, or 1950 and 1970. As described above, $\Delta f_{it,\,t-1}$ is the change in the migrant share of SMSA *i*'s population between time *t-1* and time *t*. The preferred specification also includes a full set of "quasi-state" (ν_j) and decade dummies (δ_t), and their interaction.[24] The effect of migration on economic outcomes is then identified from differences in population flow between cities in the same state, or region, in the same decade. I weight regressions by the geometric mean of the underlying sample size for the two years in question, and cluster standard errors by SMSA.

The interpretation of β, the coefficient of interest, depends on the structure of the residual terms. The residual can be decomposed into two separate elements:

$$\varepsilon_{ijt} = (\Delta \hat{Y}_{ijt,\,t-1} - \Delta Y_{ijt,\,t-1}) + \kappa_{ijt,\,t-1}. \qquad (2)$$

Let $\Delta Y_{ijt,\,t-1}$ be the true change in one of the economic outcomes in SMSA *i* between *t-1* and *t*, whereas $\Delta \hat{Y}_{ijt,\,t-1}$ is the change we observe in the Census data. Then $(\Delta \hat{Y}_{ijt,\,t-1} - \Delta Y_{ijt,\,t-1})$ is the component of the residual due to sampling variability, which will be particularly acute in samples that rely on a small numbers of men to represent an SMSA but should be uncorrelated with black migration flows. On the other hand, let $\kappa_{ijt,\,t-1}$ represent unmeasured and time-varying aspects of an SMSA that affect wages or employment opportunities of low-skilled men (e.g., the expansion of certain local industries, favorable changes in city administration). $\kappa_{ijt,\,t-1}$ is likely to be positively correlated with a city's migrant flow if migrants are attracted to cities experiencing

[24] I use state dummies for any states with more than three SMSAs in 1970 (the more restrictive year); otherwise, I create region dummies. Thus, the categories include six states – CA, IL, IN, MI, OH, PA (minus Philadelphia) – and seven regions – Mid-Atlantic (NY, NJ), Border states (DE, MD, Philadelphia), Central (KS, MO, NE, SD), Midwest (IA, MN, WI), New England (MA, ME, NH, RI, CT), Pacific (OR, WA) and Southwest (AZ, CO, NM, UT).

economic growth, a factor which could bias β upwards – i.e., towards zero, if the true β is negative .

To address the potential correlation between migrant flows and local economic conditions, one would want an instrument that isolates the exogenous component of black migration flows. In designing the instrument, I make use the fact that black migrants were both *pulled* to the North by economic opportunities (such as those embodied in $\kappa_{ijt, t-1}$) and *pushed* from the South by economic upheavals in the agricultural sector. In particular, I consider three aspects of the southern economy that are associated with black out-migration: the percentage of the state's tilled land planted with cotton, the percentage of black farmers operating as tenants and the change in this percentage.[25] I use lagged values of these variables as instruments to avoid concerns over reverse causality, e.g., economic opportunities in Chicago might draw black migrants out of Mississippi, prompting a reorganization of agricultural production there. In particular, I instrument for black in-migration from time *t* to *t+1* with southern economic conditions prevailing at time *t-1*.

Let S_{t-1} represent a vector of some agricultural variable, say the black tenancy rate, for the 14 southern states at time *t-1*. To generate an instrument that will predict migration into a northern/western SMSA, I multiply S_{t-1} by an SMSA-specific vector of weights (P_i), which are the shares that each southern state *k* represent among the birth places of the black migrant stock living in SMSA *i*. In other words, each northern SMSA is assigned an effective tenancy rate, cotton percentage, etc. based on the average conditions in the southern states from which its black migrants originated. Notice that the vector of weights does not have a time subscript. I use a fixed state-of-birth profile throughout this period, which is derived from merged data from the

[25] For the purposes of this paper, the South includes the following states: AL, AR, FL, GA, KY, LA, MS, NC, OK, SC, TN, TX, VA and WV. DE and MD (the "border states") are not considered part of the South.

1940, 1950 and 1970 IPUMS. For the instrumental variable estimation, I restrict the sample to SMSAs with at least 100 black southern residents in these three Census years; this rule leaves me with 54 SMSAs in 1940 and 1950, and 50 in 1970. One may be concerned that using data from throughout the period to construct the weights allows economic conditions in the North to influence the realized state-of-birth profiles. If, for instance, San Francisco is booming in the 1940s at the same time as Arkansas is going through a process of agricultural dislocation, we might expect a larger flow between Arkansas and San Francisco then to other comparable cities. The ideal solution would be to create a state-of-birth profile for 1940, before the second wave of the migration began. Published data does exist on state of birth by race in 1940, but then only for 36 cities (together constituting 31 SMSAs), which would nearly halve the sample size.[26] Reassuringly, comparison of the constructed weights with those derived from aggregate counts in 1940 reveal a very stable state-of-birth pattern for the black migrant population by SMSA, which is consistent with accounts of networks connecting southern communities to particular northern/western locales.

The instrument uses both spatial and temporal variation to predict in-migration to northern SMSAs. The spatial variation derives from the fact that black migrants from a given southern state did not settle uniformly throughout the North, but instead followed established channels to particular destinations.[27] While a large part of this variation occurs *across* states, due to train routes or the distance between regions, – e.g., migrants from Mississippi make up nearly 30 percent of black southern population living in Illinois, but only 7 percent in California – there

[26] In fact, the counts are for central cities, not SMSAs, the latter concept not yet having been implemented by the Census Bureau.

[27] Grossman vividly describes this human chain: "The first to leave a town often functioned as scouts for the whole community. Relatives and friends anxiously awaited reports of 'how things broke'….With the arrival a note declaring 'everything pretty,' or 'Home ain't nothing like this," others made preparations to depart" (p. 89). Family visits for weddings and funerals, or at Christmas time, further assisted the flow of information.

is still substantial idiosyncratic variation *within* states. For illustration, Table 7 presents the state-of-birth profile of black southern migrants for the eight Californian cities in the sample. The four southern states with the largest migrant population in each city are highlighted in bold. Texas is the leading source state for most of these cities, followed by either Arkansas or Louisiana. However, the Texan percentage among black southerners ranges widely from 14.9 (Sacramento) to 37.5 (Fresno). At the same time, certain southern states are heavily represented in only a few cities (e.g., Alabamans in Sacramento; Oklahomans in Fresno, San Jose and Stockton).

The temporal variation stems from the fact that mechanization in planting and harvesting, which displaced black agricultural labor, occurred at different moments across the South. Wright (1986) explains that this mechanization occurred first in the cotton-growing regions in the 1940s, and only spread to tobacco-growing and other areas in the 1950s and 60s. Briefly: over-production in the early 1930s led cotton prices to plummet, prompting Congress to pass the Agricultural Adjustment Act (AAA) of 1933. Among other things, the Act gave cotton growers an incentive to leave some of their fields fallow. As a result, many tenant farmers in cotton-growing states were squeezed off their plots and turned to wage labor. The shift from tenancy to wage work increased the scale of production on many cotton plantations, inducing planters to invest in capital, such as the mechanical harvester, which further displaced agricultural labor.[28]

The benefit to using time-varying factors in predicting black migration flows is that migration flows *themselves* vary over time, a fact that few other instruments have been designed to address. Altonji and Card (1991), for instance, developed an instrument that predicts immigrant flows into a city with the fraction foreign-born in that city in the previous decade. The justification for their strategy was that immigrants often locate near friends and relatives in a

[28] For a more thorough description of this process, see Wright, p. 226-238 and Fligstein, p. 137-151. A narrative account of the connection between Southern agricultural change and the Northern migration can be found in the first chapter of Lemann's *The Promised Land* (1991).

manner unrelated to local economic conditions. However, a city's immigrant share is a highly persistent characteristic – New York has a consistently high immigrant share, and Green Bay, WI does not. Thus, their instrument is likely to pick up economic shocks to major hubs that consistently receive large numbers of immigrants.

I present the first-stage of the IV procedure in Table 8a: a regression of the flow of black migrants into a northern/western SMSA against the (weighted) change in the three lagged southern agricultural variables, along with state and year effects, and their interactions. The coefficients are all large in magnitude and each individually significant at the 1 percent level. The direction of the relationships stand to reason: a higher tenancy rate among southern source states corresponds to a larger migration flow into an SMSA. Increasing the average tenancy rate of a city's migrant stock by four percentage points – roughly the difference between Louisiana (72.0) and Mississippi (75.3) – would have increased the black migrant share of that city by three-quarters of a standard deviation, or by around one percentage point. (Means and standard deviations for variables used in the first stage are reported in Table 8b). Furthermore, large reductions in black tenancy in the previous decade, which contributed to the displacement of black southern farmers, are associated with heightened migration. Holding tenancy constant, a higher cotton share of agriculture is associated with a lower black migration flow, perhaps because these states left less land fallow, and thus had more employment opportunities for black agricultural labor.

V. Results

In this section, I present the results from estimating equation (1) for four samples of low-skilled men living in the North/West by race and by industry, and a "placebo" sample of high-skilled

men. Table 9 uses the largest sample (low-skilled white men) to investigate a series of different specifications. In Table 10, I use the preferred specification to consider the effect of black migration on the other populations. Table 11 revisits these results with the instruments based on southern agricultural conditions. All of the tables are organized as follows: columns contains results from different specifications, or from different samples of men. Rows presents coefficients from regressions of each dependent variables in turn – employment rates, weekly wages, annual earnings and weeks worked. While the table only presents coefficients for the variable of interest ($\Delta f_{it, t-1}$), all regressions also contain the logarithm of city population at the beginning of the migration period. The black migrant flow is heavier, on average, to larger cities, even as a percentage of the existing population. To the extent that low-skilled men have systematically better/worse outcomes in large or small cities, it is important to control for city size.[29]

Turning to Table 9, I begin in the first column with the raw correlation between black migration and changes in economic outcomes, including only decade effects (δ_t). The estimates thus reflect variation both across and within states/regions of the country. In this specification, black in-migration has a negative relationship with the employment rates of low-skilled white men, but appears to have a *positive* effect on their weekly wages, with the effect coming solely through a boost in annual earnings. This positive relationship should not be considered causal; rather, it likely points to the fact that black migrants were attracted to metropolitan areas characterized by rising wages for the low-skilled. Furthermore, none of these relationships are economically large. For example, the coefficient on the employment regression of -0.427 implies that a one standard deviation increase in the black migrant share is associated with a 0.6

[29] In this sample, city size is negatively correlated with the wages and positively correlated with the employment rates of low-skilled men. Thus, omitting city size would mask any true negative relationship between black migration and employment, while enhancing such a relationship with low-skilled wages.

percentage point decline in employment.[30] Evaluated at the mean for this period, this translates into a reduction from an employment rate of 90.2 to one of 89.6 – not a large change!

The second column adds quasi-state dummy variables (ν_j), controlling for the fact that some regions (e.g., Michigan) experienced persistently high migration flows. The negative coefficient for the employment regression is nearly unchanged by this addition. The coefficient on weekly wages, while still positive, is smaller and no longer statistically significant, confirming that migrants were in fact drawn to prospering states/regions. This pattern is reinforced in column 3, which introduces state-year interaction terms. In this context, the positive coefficients for weekly wages and annual earnings are a quarter of their original size, hovering around zero. The negative relationship between black migration and employment rates is still negative, of roughly the same magnitude, and is now significant at the 1 percent level.

The remainder of the columns in Table 9 subject the preferred specification in column 3 to a series of robustness checks. In column 4, I omit Wilmington, DE and Baltimore, MD, the two cities in the "border states," which are often considered part of the South. Baltimore, in particular, had among the highest black migration flow in the 1940s; the black migrant share of its population increased by 4 percent in that decade, compared to the average of 1.2 percent. Excluding these two cities does not change the coefficients perceptively, suggesting that the relationship is not being driven by the most obvious outliers. Column 5 presents results from regressions using a balanced panel of cities, including only those 71 SMSAs that can be identified in 1970. The omitted observations in 1950 tend to be from smaller cities in the Northeast and Midwest (e.g., Saginaw, MI; Rockford, IL). The negative relationship between

[30] We can interpret each coefficient as the percentage change in the dependent variable (or percentage point change, in the case of the employment rate) associated with a one percentage point increase in the share of southern black migrants in a city's population. The mean change in the black migrant share of the population for this full sample of SMSAs is 1.2 percent (s.d. = 1.4).

black migration and employment is stronger in this reduced sample, with a one standard deviation increase in the black migrant share associated with a 0.9 percentage point decrease in the low-skilled employment rate. The coefficient for weekly wages is still positive, small, and insignificant.

Finally, in column 6, I add as an additional regressor the changes in the share of the population made up of *white* southern migrants. The period 1940-1970 was not only the second wave of the Great Black Migration but was also a time of heavy migration of whites from the South. In fact, the in-migration of southern whites was on average twice as high as that of blacks in the SMSAs in the sample, with a mean decadal increase in the white migrant share of 2.1 percent compared to 1.2 percent for the black migrant share.[31] Given this pattern, it is possible that any relationship between black migration and the economic outcomes of low-skilled native whites could in fact be reflecting the competitive pressure of white southern migrants. Column 6a presents coefficients on the black migration variable, as always, while column 6b includes coefficients on changes in the white migrant share taken from the same regressions. The effect of the black migration variables should be compared with coefficients from column 3. The introduction of white migration does mitigate the relationship between black migration and employment rates somewhat (the coefficient falls from -0.587 to -0.499, but is still highly significant). At the same time, the arrival of white migrants appears to have an independent, negative effect on the employment of the low-skilled men in the sample, with a coefficient of -0.357 (s.e. = 0.148), which translates into a 0.9 percentage point decline in employment for a one standard deviation increase in white migration. Furthermore, it is associated with a 1.5 percent decline in annual earnings, and a 1.0 percent decline in weeks

[31] The white migration flow is measured akin to black in-migration: the change in the share of a particular age cohort made up of southern-born whites over a Census period. Refer to section III for more details.

worked during the year for low-skilled white men. The independence of the effects of white and black migration are consistent with the fact that the migrations were not closely related in either timing or geographic pattern.[32]

Overall, the OLS results suggest that the arrival of southern migrants, both black and white, had small negative effect on employment rates of low-skilled whites in the North. White migrants also appear to have had negative impact on the components of weekly wages, while black migration has no discernable relationship with these outcomes. The signs and magnitudes of these results accord with other studies that rely on geographic variation to estimate the impact of the foreign-born on competing natives, most of which find insignificant or even positive correlations between migration and native outcomes.[33]

Table 10 extends this approach to four other samples of the northern/western labor market. Results should be compared with those in column 6 of Table 9, which includes state-year interactions and both black and white migration variables. The first two columns of Table 10 divide low-skilled northern-born men by employment in high or low migrant-share industries. High migrant-share industries include services like hotel and lodging, and eating and drinking establishments, along with basic manufacturing; low migrant-share industries primarily include retail and heavy industry. It is important to note that the employment rate of workers in a certain industry may not be a well-defined concept. If a worker previously employed as, say, a hotel bellhop is laid off or has trouble finding work because of competition from southern migrants, he may look for a job in a grocery store. This caveat notwithstanding, southern migration of both

[32] White southern migrants tended to come from the Appalachian states, while black migration was heaviest from the Cotton Belt (e.g., MS, LA). As a result, southern migrants of different races tended to settle in different northern locations. A regression of black migrant flows on white migration flows – along with state and decade dummies, their interactions, and the lagged logarithm of city size – results in a coefficient of 0.11 (se = 0.048). That is, a one percentage point increase in white migration to an SMSA is associated with a 0.11 percentage point increase in black migration. While this relationship is positive and statistically significant, it is not quantitatively large.

[33] See Friedberg and Hunt (1995) for a survey of this literature.

races has a stronger negative relationship with the employment rates of workers in migrant-intensive industries than with their counterparts in low migrant-share sectors. For low-skilled workers in high migrant-share industries, the coefficients for black and white migration respectively are -0.425 and -0.459, compared to -0.244 and -0.020 for workers in low migrant-share industries. Similarly, white (black) migration has a negative (negligible) impact on the wages in high migrant-share industries, while southern migrants of both races appear to have a positive impact on wages in low migrant-share industries.

Skipping now to the fourth column of Table 10, I present similar results for the sample of black men. As discussed above, data limitations – particularly the sample-line restriction in the 1950 Census – require the inclusion of men of all education levels, not only those with less than 12 years of schooling, and men born in all regions of the country Consequently, the results are average treatment effects of black migration on African-Americans of all skill levels, and are thus likely to under-estimate the true effect on the low-skilled. Recall further that information on weekly wages are only collected for sample-line individuals, so I am only able to estimate the effect of migration on employment for this population. Despite these limits, there still appears to be a demonstrable negative effect of both black and white southern migration on the employment rates of black workers in the North/West. The coefficients are roughly twice the size of those for low-skilled white men, translating into a one percentage point decline in employment rates for a one standard deviation increase in the black migrant share, and a two percentage point decline for such an increase in the white migrant share.

So far, the OLS results have suggested that southern migration, both black and white, had an adverse effect on the employment rates and weekly wages of various groups of competing workers, including white, northern-born men (particularly those in migrant-intensive industries)

and on black men as a whole. In column 3, I introduce a group of men that most likely did not compete for jobs with the primarily low-skilled southern migrants: white, northern-born men with fourteen or more years of education. All of the men in this group have completed high school, and many have at least some college education. The resulting pattern is surprising, and points strongly to the need for a source of exogenous variation in migration flows. First, black migration, most of which was low-skilled, appears to have a strong negative effect on both the employment rates and wages of high-skilled whites. At the same time, white southern migration has an almost equal and opposite effect. High-skilled men in cities that received larger flows of white migrants experienced rising annual earnings and greater labor force attachment (both in terms of employment and weeks worked). This discrepancy cannot be explained by a basic model of the labor market. Black migrants should not compete with high-skilled white workers; if anything, they should complement them in production (e.g., in a factory with both managers and operators). Also, if anything, white southern migrants should be *more* competitive with high-skilled northern whites, not less, both because white southern migrants tended to be more educated than their black counterparts, and to the extent that there is racial segmentation in the workplace. One plausible explanation for this incongruity is the differential selection of locations. Black migrants may have selected cities based on the health of the low-skilled labor market in particular. Many of these rust-belt areas may have simultaneously been shedding jobs for high-skilled workers relative to the rising financial centers on the coasts.

To correct for the bias from endogenous location choice, Table 11 presents a set of regressions in which the black migration variable has been instrumented by measures of southern economic change.[34] The SMSA-specific state-of-birth profiles underlying the instruments limits

[34] The IV regressions do not include the endogenous white migration flow on the right hand side. A similar instrument could theoretically be constructed for this population using the white southern state-of-birth profile by

the sample for the IV analysis to 103 SMSAs for the full sample of northern-born white men.[35] Instrumenting for black migration flows substantially alters the results. First, the small, but robust, effect on the employment rates of low-skilled native white men triples in size from -0.587 to -1.583. The coefficient on the sample of black men also grows to -1.345, but is still not statistically significant. As before, the negative impact of black migration on low-skilled workers falls only on those employed in high migrant-share industries. A one standard deviation increase in black migration – roughly, the difference in black migrant flow between Los Angeles and San Francisco in the 1950s and 1960s – is associated with a 3 percentage point decline in employment for such workers. Attachment to the labor force is also reduced on the intensive margin, with a one standard deviation increase in black migration translating into a 3.5 percent decline in weeks worked, or a reduction of 1.5 weeks from a mean of 44 weeks. While the presence of black migrants also weakens annual earnings for this sample (coeff. = -1.816, s.e. = 1.294), the effect is not large enough to overwhelm the reduction in weeks worked; thus, on net, migration does not appear to have a negative impact on weekly wages.

With the instrument in place, the arrival of black migrants appears to have had little impact on the two samples of "non-competing" workers: men in low-migrant share industries and high-skilled white men. In fact, black migration seems, if anything, to improve the annual earnings of low-skilled workers in low migrant-share industries. A one standard deviation increase in black migration is associated with a five percent increase in weekly wages for this group, or 27 dollars a week evaluated at the sample mean of $533. Black migration could have had a positive effect on wages for these low-skilled workers if inter-industry mobility was rare.

SMSA and a set of southern economic variables. Fligstein (1981) finds that many of the same southern variables, including the cotton percentage and white tenancy rate, had a significant effect on white out-migration.

[35] The numbers of SMSAs for the other samples are: 103 for men in high migrant-share industries, 86 for men in low migrant-share industries and 78 for black men. Corresponding OLS regressions for these reduced samples are not qualitatively different from the results presented in Tables 9 and 10.

In that case, the main effect of black migration would be an outward shift in demand for locally produced goods (e.g., retail services). Reassuringly, the negative relationship between black migration and the economic outcomes of high-skilled whites disappears entirely in the context of the instrumental variables regression, indicating that the instrument is not itself correlated with general negative shocks to northern labor markets.

The paper began by asking about the quantitative importance of the black migration flow in explaining relative economic outcomes of blacks and whites in the North. Recall from Table 1 that black employment rates in the North were consistently 6-8 percentage points below white employment from 1940 to 1960; at the same time, blacks were keeping pace with white employment in the South. Only in 1970, after a decade of economic expansion, did the northern gap close to 3 percentage points. The estimated coefficients suggest that black migration had a large negative impact on the employment rates of low-skilled workers in high migrant-share industries. Particularly at the beginning of the period, blacks in the North were much more likely to fall into this category, and thus may have been disproportionately affected by the black migrant flow even the absence of race-specific competition.

Using the estimated relationships between black migration and employment rates, along with the observed skill distribution and industrial composition by race in the North, we can pose the following question: what would the employment rates *have been* for blacks and whites in the North if the black migration flow had stopped or substantially slowed? In particular, what would black/white employment rates have been in the North in 1950 if the strong migration of the 1940s had instead followed the slower pace of the 1950s and 1960s? In the 1940s, the mean SMSA in the sample experienced an increase in their black migrant share of 1.2 percentage points, a number which fell to 0.60 percent in the 1950s and 1960s.

Table 12 reports the actual employment rates by industry, skill-level and race in the years 1950 and 1970, along with the share each group comprises in labor force. The overall black/white employment rate is just a weighted sum of these figures. To calculate the counterfactual employment rate, I start by making a few assumptions. First, a combination of sample restrictions and the size of the northern black population prevent me from estimating separate effects by skill and industry for black men. Thus, I apply the coefficients estimated for mixed-race samples to both black and white men, effectively assuming that all workers who meet a certain skill/industry profile are equally affected by the migrant flow, regardless of race. The counterfactual rate should be seen as a lower bound because it does not allow for the possibility that labor markets were segmented by race in some cities. Furthermore, to simplify the calculations, I assume that black migration had no effect on the two groups of "non-competing" workers – low-skilled men in low migrant-share industries and high-skilled men; this conclusion (along with a series of other values within the confidence intervals) is supported by the estimates.

Our counterfactual transposes the 1950/60 rate of black migration to the 1940s. A reduction of this magnitude would have increased employment of native low-skilled workers in migrant-intensive industries by 1.3 percentage points (-2.215 * 0.60), while leaving the employment rates of other groups unchanged. Using the 1950s labor force composition from Table 12, we can calculate counterfactual employment rates for blacks and whites in the North of 90.9 and 95.7 respectively, compared to the actual employment rates of 89.0 and 95.2. In other words, if blacks had migrated at a slower pace in the 1940s, the black-white employment gap would have been 4.8 percentage points instead of its actual size of 6.2. Migration thus accounts for around a quarter of the racial employment gap in the North.

VI. Conclusion

Ongoing black migration from the South had a demonstrable effect on the labor force attachment of competing workers in northern/western labor markets in the decades following World War II. A one percent increase in the black migrant share of a city's population, around the mean for this period, was accompanied by a 2.5 percentage point decline in employment and 3.5 percent decline in weeks worked for northern-born workers employed in high migrant-share industries. While a migration flow of this magnitudes appears to reduce the employment rate of all black workers by 1.5 percentage points, it is likely that the impact on *low-skilled* black workers was even larger. There is no evidence that individual black workers were more adversely affected by the arrival of black migrants. However, because the black workforce was disproportionately low-skilled and employed in migrant-intensive industries the migration had a larger effect on black workers in the aggregate.

Table 1: Regional Trends in Male Wages and Employment by Race and Region of Residence, 1940-1970

	1940	1950	1960	1970
Weekly wage				
North				
White	362.12	484.62	696.87	868.78
Black	235.93	365.26	504.92	622.85
Black/white ratio	65.2	75.3	72.4	71.6
South				
White	283.61	414.19	574.17	775.68
Black	135.66	234.62	301.65	453.12
Black/white ratio	47.8	56.7	52.6	58.4
Employment rate				
North				
White	89.7	95.8	95.6	96.5
Black	82.0	89.9	89.6	93.5
Black/white ratio	91.4	93.8	93.7	96.8
South				
White	93.4	97.2	95.8	97.4
Black	92.6	96.0	93.0	95.6
Black/white ratio	99.1	98.7	97.1	98.2

Notes: Means are calculated for men aged 18-65 who are not in school or in the armed forces and do not live in group quarters. Weekly wage is defined as wage and salary earnings divided by weeks worked in the past year for individuals with non-zero earnings. Self-employment earnings are not reported in 1940. For consistency, I exclude the self-employed from the measure of weekly wages throughout the period. Weeks worked are measured in intervals in 1960 and 1970; I assign each individual the mid-point of this interval. To adjust for reporting error in annual earnings or weeks worked, wages lower than $5/week are reassigned to a $5 floor. Likewise, wages higher than $2700/week are assigned to a $2700 ceiling. All monetary values are in 1999 dollars.

Table 2: Black In-Migration to Eight California Cities, 1940-1970

City	Change in % population black southern migrant
1940-49	
San Francisco	6.18
Los Angeles	3.36
Fresno	2.69
Riverside-San Bernardino	2.63
Stockton	1.73
Sacramento	0.91
San Diego	0.64
San Jose	-0.03
1950-69	
Los Angeles	1.11
San Diego	1.05
Sacramento	0.96
San Jose	0.55
Riverside-San Bernardino	0.31
Stockton	-0.23
San Francisco	-0.70
Fresno	-0.84

Notes: Black migration flows are measured as changes in the share of an age cohort within an SMSA made up of southern-born blacks over a Census period. Data comes from the IPUMS. The 1940-49 measures are based on individuals aged 10-40 in 1940, while the 1950-69 measures are based on individuals aged 10-30 in 1950.

Table 3: Industrial Distribution in Low-Skilled Workers in North/West, 1950

Industry	% migrant	Share of… Black southern	Black northern	White southern	White northern
High migrant share					
Private household services	21.38	1.45	3.16	0.13	0.49
Hotels & lodging places	9.38	1.25	3.29	0.59	0.69
Primary metal industries	9.08	11.28	7.71	6.19	5.68
Personal services	8.85	3.56	3.03	1.63	1.37
Water transport	6.10	1.45	2.91	0.98	0.99
Real estate	6.09	1.65	2.65	0.78	1.15
Transportation equipment	5.76	8.77	3.41	13.29	5.94
Tobacco products	5.36	0.05	0.13	0.07	0.10
Railroad transport	5.16	6.82	4.93	4.50	4.28
Eating & drinking places	4.81	4.26	5.56	3.00	2.84
TOTAL		40.55	36.79	31.14	23.53
Low migrant share					
Fisheries	0.75	0.05	0.13	0.13	-
Agriculture	0.72	1.30	1.01	1.66	3.65
Insurance	0.69	0.10	0.38	0.66	0.26
Communications	0.56	0.10	0.51	0.60	0.46
Legal services	0.43	-	0.13	0.02	-
Metal mining	0.41	0.05	0.13	0.13	-
Engineering services	0.13	-	0.13	0.08	-
Oil and gas extraction	0.11	-	-	0.06	0.13
Pipelines	-	-	-	-	-
Forestry	-	-	-	0.04	-
TOTAL		1.60	2.40	3.36	4.50

Notes: Author's calculations from 1950 IPUMS data. All groups limited to men between the ages 18-65 with less than 12 years of education.

Table 4: Estimated Index of Labor Market Competition between Black Southern Migrants and Groups of Northern/Western Men

Group	*1940*	*1950*	*1960*	*1970*
Blacks born in North	1.62	1.52	1.45	1.56
Whites born in North	1.31	1.36	1.42	1.52
Whites born in South	1.40	1.56	1.55	1.73

Notes: See text (esp. footnote 9) for description of index. The index represents the average proportional increase in labor supply associated with a fixed number of new black migrants for each of the three "native" groups, based on their industrial distribution. Values above one indicate that the particular group is more than proportionately affected by any migrant-induced increase in the total labor force.

Table 5: Descriptive Statistics, 4 Samples of Male Workers, Pooled 1940-1970

Characteristics	By industry		By race		
	High migrant share	Low migrant share	White	White	Black
Place of birth	North/West	North/West	North/West	North/West	Nation
Education	<12 yrs	<12 yrs	<12 yrs	14+ yrs	Any
Age	41.6	40.5	41.4	36.5	37.3
Yrs of school	7.9	8.1	7.9	15.6	9.3
Employ rate	90.9	92.0	90.2	97.0	89.3
Weekly wage	538.90	533.31	536.16	993.54	551.44
Ann. earnings	23,213	23,130	23,047	42,392	23,647
Weeks worked	44.0	44.3	43.9	42.3	43.9
# SMSAs, 1940/50	95	67	98	57	34
# SMSAs, 1950/1970	71	60	71	53	48

Notes: Authors calculations from merged IPUMS data from the 1940, 1950 and 1970 Censuses. Monetary values recorded in 1999 dollars. The last two rows record the number of SMSA with 20 or more men who meet the sample requirements (18-65 years of age, not in school, armed forces, or in group quarters) and fall into the assigned category. A particular SMSA must be in the sample for both 1940 and 1950, or 1950 and 1970.

Table 6: The Effect of Place-of-Birth and Recent Migration on Labor Market Outcomes, Black Men Living in North/West

	1940	1950	1970
1. Employment rate			
Baseline (born in North/West)	**0.793**	**0.901**	**0.923**
Born in South	0.004	-0.017**	-0.005
	(0.010)	(0.006)	(0.004)
Born in South & recent migrant	0.013		0.015
	(0.021)		(0.010)
2. Weekly wage			
Baseline (born in North/West)	**$206.43**	**$311.06**	**$523.22**
Born in South	0.026*	0.055**	0.063**
	(0.015)	(0.027)	(0.011)
Born in South & recent migrant	-0.050		-0.011
	(0.034)		(0.027)

Notes: Sample includes civilian, non-institutionalized black men between the ages of 18-65 living in the North. Recent migrants are defined in 1940 and 1970 as men who reporting having moved across state lines within the past five years, and having been born in the South. Underlying regressions include cubic polynomial in age.

Table 7: State-of-Birth Profiles for Black Southern Migrants in 8 Californian Cities

	AL	AR	FL	GA	KY	LA	MS	NC	OK	SC	TN	TX	VA	WV
Fresno	0.013	**0.196**	0.004	0.009	0	**0.121**	0.085	0.004	**0.179**	0	0.013	**0.375**	0	0
Los Angeles	0.068	**0.091**	0.016	0.044	0.009	**0.234**	**0.109**	0.012	0.069	0.010	0.038	**0.288**	0.010	0.003
San Bernardino	0.051	0.073	0.045	0.045	0.017	**0.180**	**0.118**	0.022	**0.079**	0.011	0.051	**0.292**	0.017	0
Sacramento	**0.170**	**0.117**	0.011	0.037	0.016	**0.191**	0.106	0.037	0.074	0.011	0.043	**0.149**	0.032	0.005
San Diego	0.062	**0.122**	0.034	0.032	0.016	**0.167**	**0.119**	0.050	0.067	0.021	0.046	**0.222**	0.041	0
San Francisco	0.036	**0.145**	0.009	0.024	0.007	**0.318**	**0.085**	0.012	0.042	0.009	0.022	**0.276**	0.013	0.003
San Jose	0.036	**0.111**	0.033	0.028	0.049	0.049	0.026	0.024	**0.194**	0.013	**0.053**	**0.326**	0.035	0.022
Stockton	0.009	**0.281**	0	0	0	**0.132**	0.123	0.018	**0.202**	0	0.009	**0.228**	0	0

Notes: Authors calculations from merged IPUMS data from the 1940, 1950 and 1970 Censuses.

Table 8: First-stage: Relationship between Southern Economic Conditions and Migration In-Flows to Northern/Western SMSAs

Dependent Variable = $\Delta f_{it, t-1}$ (black migrant flow)	
1. Weighted southern agricultural variables	
% arable land in cotton $_{t-1}$	-0.266**
	(0.092)
% black farmers working as tenants $_{t-1}$	0.319**
	(0.082)
% Δ in black tenant share $_{t-1}$	-0.231**
	(0.092)
2. States in 1940-49 (omitted = CA)	
IL	0.007
	(0.006)
IN	-0.031**
	(0.011)
MI	0.006
	(0.007)
OH	-0.010*
	(0.006)
New England (MA, RI, CT, NH, ME)	-0.034**
	(0.006)
NY/NJ	-0.019**
	(0.005)
PA	-0.021**
	(0.005)
Border states (MD, DE, Philadelphia)	0.021**
	(0.006)
Central (KS, MO, NE, SD)	-0.015**
	(0.007)
Northwest (MN, WI)	-0.030**
	(0.008)
Pacific (WA, OR)	-0.019**
	(0.008)
Southwest (AZ, NM, UT, CO)	-0.019*
	(0.013)
3. Other	
$Ln(pop)_{t-1}$	0.003**
	(0.001)
1970=1	-0.002
	(0.011)
State*year	Y
N	103

Notes: Standard errors are clustered by SMSA and reported in parentheses. Coefficients that are significant at the 5 percent or 10 percent are marked with ** or * respectively. Explanatory variables are weighted averages across 14 southern states, where the weights are the state-of-origin distribution for the black southern migrant stocks in each city.

Table 8b: Summary statistics for first-stage regression

Variables	Mean	Standard Deviation
Δ % black southern migrant	0.015	0.016
% arable land in cotton	0.235	0.062
% black farmers working as tenants	0.657	0.074
% Δ in black tenant share	-0.104	0.057

Table 9: OLS Relationship between Southern Migrant In-Flow and Changes in Labor Market Outcomes for Low-Skilled White Men by SMSA, 1940-1970

Dependent Variable = Δ adjusted SMSA outcome							
	(1)	(2)	(3)	(4)	(5)	(6a)	(6b)
	Year effects	Add state effects	Add state*year effects	Without Border states	Balanced panel	Add white southern migration	
						Black coeff.	White coeff.
a. Employment rate	-0.427*	-0.407	-0.587**	-0.560**	-0.634**	-0.499**	-0.357**
	(0.239)	(0.299)	(0.214)	(0.207)	(0.223)	(0.196)	(0.148)
b. Ln(weekly wage)	0.789*	0.486	0.233	0.021	0.572	0.290	-0.232
	(0.467)	(0.528)	(0.457)	(0.485)	(0.513)	(0.448)	(0.394)
c. Ln(ann earnings)	0.721*	0.202	0.112	0.095	0.591	0.288	-0.715*
	(0.439)	(0.540)	(0.592)	(0.637)	(0.645)	(0.581)	(0.434)
d. Ln(wks worked)	-0.061	-0.208	0.015	0.199	0.128	0.135	-0.485
	(0.403)	(0.389)	(0.367)	(0.399)	(0.415)	(0.365)	(0.310)
Year	Y	Y	Y	Y	Y	Y	Y
State	N	Y	Y	Y	Y	Y	Y
State*year	N	N	Y	Y	Y	Y	Y
N	169	169	169	167	144	169	169

Notes: Standard errors are clustered by SMSA and are reported in parentheses. Coefficients that are significant at the 5 percent or 10 percent levels are marked with ** and * respectively. Regressions are weighted by the geometric mean of the sample sizes for the two Census years used to construct the dependent variables. The independent variable is: change in the percentage of an SMSA's population made up of black southern migrants. All regressions include the logarithm of SMSA *i*'s population at time *t-1*.

Table 10: OLS Relationship between Southern Migrant Flow and Labor Market Outcomes by Industry and Race, 1940-1970

Dependent Variable = Δ adjusted SMSA outcome								
	Northern-born							
	(1) Less than 12 years education, High migrant share industries		(2) Less than 12 years education, Low migrant share industries		(3) White, 14+ years of education		(4) Black, all education levels	
	Black coeff	White coeff	Black coeff	White coeff	Black coeff	White coeff	Black coeff	White coeff
a. Employment rate	-0.425*	-0.459**	-0.244	-0.020	-0.473**	0.242*	-0.768	-1.056**
	(0.237)	(0.237)	(0.367)	(0.377)	(0.212)	(0.134)	(0.521)	(0.481)
b. Ln(weekly wage)	0.069	-0.505	0.731	0.278	-2.323**	1.619		
	(0.432)	(0.398)	(1.105)	(0.882)	(0.950)	(0.553)		
c. Ln(annual earnings)	0.059	-0.992*	1.166	0.129	-2.204	3.054**		
	(0.657)	(0.557)	(1.098)	(0.887)	(1.661)	(1.039)		
d. Ln(weeks worked)	0.114	-0.447	0.407	-0.129	0.204	1.516**		
	(0.473)	(0.400)	(0.688)	(0.484)	(0.983)	(0.747)		
Year, state, state*year	Y	Y	Y	Y	Y	Y	Y	Y
N	164	164	125	125	109	109	81	81

Notes: Standard errors are clustered by SMSA and are reported in parentheses. Coefficients that are significant at the 5 percent or 10 percent levels are marked with ** and * respectively. Regressions are weighted by the geometric mean of the sample sizes for the two Census years used to construct the dependent variables. The independent variable is: change in the percentage of an SMSA's population made up of black southern migrants. All regressions include (quasi-) state dummies, year dummies and state-year interactions, as well as the logarithm of SMSA *i*'s population at time *t-1*.

Table 11: IV Relationship between Black Migrant In-Flow and Changes in Labor Market Outcomes, 1940-1970

Dependent Variable = Δ adjusted SMSA outcome					
	Northern-born				
	Less than 12 years education				
	(1) White	(2) High mig-share industries	(3) Low mig-share industries	(4) White, 14+ years of education	(5) Black, all education levels
a. Employment rate	-1.583**	-2.215**	0.019	-0.222	-1.345
	(0.500)	(0.661)	(0.762)	(0.451)	(0.991)
b. Ln(weekly wage)	2.077	0.952	3.048*	-0.769	
	(1.277)	(1.251)	(1.766)	(2.194)	
c. Ln(annual earnings)	1.052	-1.816	3.815*	0.254	
	(1.321)	(1.294)	(1.999)	(3.745)	
d. Ln(weeks worked)	-1.082	-2.709**	0.600	0.775	
	(0.911)	(1.236)	(1.074)	(1.883)	
Year, state, state*year	Y	Y	Y	Y	Y
N	103	103	86	84	78

Notes: Standard errors are clustered by SMSA and reported in parentheses. Coefficients that are significant at the 5 percent or 10 percent levels are marked with ** and * respectively. The instruments for Δ % southern black are: percentage of black farmers operating as tenants, the percent change in the black tenancy rate, and the percentage of state's farmland planted with cotton as of time *t-1*. These variables refer to southern states, and are weighted by the percentage of the migrant stock in a given northern state born in each of 14 southern states. See section IV for more details on the instrument's construction.

Table 12: Components of a Counterfactual: Unemployment Rates and Workforce Shares by Race and Decade

	Unemployment rate		% of workforce	
	High migrant share industry	Low migrant share industry	High migrant share industry	Low migrant share industry
BLACK, 1950				
Low-skilled	89.0	87.8	0.662	0.134
High-skilled	92.0	94.3	0.157	0.045
WHITE, 1950				
Low-skilled	93.6	94.9	0.391	0.181
High-skilled	96.6	97.2	0.247	0.181
BLACK, 1970				
Low-skilled	91.6	93.5	0.395	0.143
High-skilled	93.9	95.7	0.298	0.164
WHITE, 1970				
Low-skilled	94.8	96.1	0.228	0.112
High-skilled	96.4	97.8	0.347	0.313

Notes: The skill distribution is divided in two, with low- (high-) skilled is defined as having strictly less than (more than) 12 years of education. High/low migrant-share industries are defined by the percentage of the workforce made up of black southern migrants in 1950. The overall black/white employment rate can be calculated as a weighted sum of its four sub-components. Counterfactuals recalculate this employment rate using the existing workforce shares.

Figure 1: African-American Migration to the North/West, 1900-1970

Source: *Historical Statistics of the United States*.

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Appendix A: Skill-group Variation

This method, due to Borjas (2003), divides the economy into skill groups, defined by education and work experience, each of which face a different supply shock due to in-migration. It then investigates the relationship between changes in mean labor market outcomes in a skill group over time, and the changes in the migrant flow into that skill group. By treating an economy as a single labor market, this method addresses two shortcomings of the local labor market approach: first, it allows for factor flows across states in response to regional supply shocks, rather than assuming that the economic impact of immigration will be felt only in the areas in which immigrants settle, and secondly, it avoids the bias that arises from the fact that immigrants choose to locate in economically prosperous areas. However, this process rests on its own restrictive assumption about the nature of the economy's production function, namely that workers are perfect substitutes for others in their education-experience cell, and imperfect substitutes for those outside it. This assumption may be particularly problematic in the case of black southern migrants at mid-century, when formal education may have been less informative about a worker's true "skill group."

Data and Definitions

As before, I restrict my attention to men ages 18 to 65 who are not self-employed or in the armed forces, and I divide this sample into 32 education-experience groups. In particular, I define four education groups: men with eight years or less of completed school, men with nine to eleven years of schooling, high school graduates, and men with at least some college. These categories differ from those used in research on the contemporary labor market, and reflect the lower educational attainment of African-American men at this time, particularly those born in the South.[36] The Census does not include a direct measure of work experience or report the year of first entry into the labor market. I therefore define work experience as min $\{$(age-education-6), (age-12)$\}$; that is, I assume that children do not enter the labor force before age 12, and otherwise that they begin working the year after completing school. I then divide the sample into eight experience intervals of five-year increments, grouping together workers with 1 to 5 years of experience, 6 to 10 years, etc.

The migrant supply shock to a particular skill group in the North is the share of that category made up of southern-born blacks in a given year. For a skill group (i, j, t), where i indexes education, j experience and t year, this percentage is represented by:

$$p_{ijt} = \frac{M_{ijt}}{(M_{ijt} + N_{ijt})} \qquad \text{(A.1)}$$

M_{ijt} is the number of migrants in cell (i, j, t) and N_{ijt} is the number of natives.

Estimation Procedure

[36] In 1940, for example, 90 percent of southern-born black men living in the North would be classified as "high school dropouts" using the standard categorization.

I consider the same labor market outcomes as above: the labor force participation rate; the employment rate, conditional on being in labor force; the logarithm of weeks worked during the past year; and the logarithm of annual earnings (** need to combine weeks worked and annual earnings into weekly wage **). Combining the data across skill groups and Census years, I calculate the mean value of a particular outcome (Y) for the native sample for each education-experience-time (*i-j-t*) cell and estimate:

$$Y_{ijt} = \beta\, p_{ijt} + s_i + x_j + \tau_t + (s_i \times x_j) + (s_i \times \tau_t) + (x_j \times \tau_t) + \xi_{ijt} \qquad \text{(A.2)}$$

where s_i is a vector of dummy variables indicating the group's education level, x_j is a vector indicating the group's work experience and τ_j denotes Census year. The main effects (s_i, x_j, τ_t) control for differences in labor market outcomes by education, experience, and time period. The interactions ($s_i \times \tau_t$) and ($x_j \times \tau_t$) permit the effect of education and experience to change over time, and the interaction ($s_i \times x_j$) allows experience profiles to differ according to education level. These interactions almost saturate the model; the impact of migration on labor market outcomes is identified by the omitted interaction, ($s_i \times x_j \times \tau_t$), or changes within education-experience cells over time.

The interpretation of these results will rest on the assumption that workers in different education-experience cells are imperfect substitutes for each other in production. In particular, we must imagine an economy in which workers are both perfectly interchangeable within a skill-group (say, high school graduates with 1 to 5 years of work experience), and equally non-substitutable with members of "close" skill groups (high school graduates with 6 to 10 years of work experience) as with those who are further away (college graduates with 25 to 30 years of experience). While this assumption may be implausible in its strongest form, it is a reasonable first approximation of reality, and has become a standard technique in labor economics to test aspects of human capital theory (see, for instance, Welch 1979 or Card and Lemieux 2001).

Results

Table A.1 reports estimates of the relationship between southern migrant share in a skill group (p_{ijt}) and the mean labor market outcomes for black men and white men living in the North. I convert β, the coefficient on the migrant supply shock, into an elasticity, or the percent change in a particular outcome associated with a percent change in labor supply due to black in-migration.[37] Row 1 presents the adjustment elasticities from the basic specification (equation 5). All of the elasticities for black men are negative, but the values are small and insignificant, with the exception of weeks worked. A migration shock that increases a skill group by one percent results in a 1.2 percent decline in weeks worked for black workers in that group. The results for white men are mixed; the elasticity for employment is negative and significant, but those for annual earnings and weeks worked are positive.

The distribution of educational attainment changed dramatically from the 1940s to the 1970s in the United States as young high school- and college-educated individuals entered the labor market, replacing older workers with only a few years of formal schooling. If this shift is

[37] The relevant equation is $d(\log wk_{ijt})/\, d\, m_{ijt} = \beta/(1+ m_{ijt})^2$ where m_{ijt} is the percentage increase in labor supply in group (*i*, *j*, *k*) attributable to black southern migration. The mean of m_{ijt} across education groups and over time is 3.6 percent.

not taken into account, β will be biased downward; this is because an increase in p_{ijt} could be due either to an increase in the migrant flow into a skill group or a decrease in the size of the native population in that group. Row 2 includes as a control the logarithm of the size of the northern workforce in each skill group. The adjustment elasticity becomes more negative in most cases. Now it appears that a migration shock that increases a skill group by one percent results in a 2.7 percent decline in weeks worked for black workers and a 0.8 percent decline for white workers in that group. Both of these effects are significant, as is the effect on employment for white workers.

Given the substantial changes in the educational attainment of the population over this period, it is interesting to see whether the effects of migration are concentrated in certain parts of the education distribution. Row 3 excludes men who had any college education, and estimates the model for men with a high school degree or less; this leaves 96 education-experience groups (3 education groups x 8 experience groups). The effects of migration on black men are larger and more significant when aggregating only across the part of the educational distribution which received the largest flows of black southern migrants. The negative adjustment elasticity for weeks worked is 3.7 percent, and now the effect on labor force participation is significant with an elasticity of 0.72. In contrast, after restricting the focus to the lower end of the educational distribution, the elasticities for white men, while still negative, are no longer significant.

Unlike the results in the body of the paper, the effect of migration on black workers appears to be both more negative and more statistically significant than the effect on white workers in most of the skill group specifications. Comparing the adjustment elasticity for weeks worked, which is the most precisely estimated of the labor market outcomes, black workers respond to a one percent, migration-induced increase in the size of their skill group by reducing their weeks spent working by 2.5 to 4 percent, whereas white workers only decrease their weeks worked during the year by 1 percent.

Table A.1: Adjustment Elasticities for Various Labor Market Outcomes by Skill Group, 1940-1970

Specification:	Dependent Variable			
Black Men	In Labor Force	Employment	Ln(earnings)	Ln(weeks)
1. % all workers = black southern migrant	-0.031	-0.264	-0.638	-1.232*
	(0.321)	(0.294)	(1.368)	(0.797)
2. Add ln(# in group)	-0.427	-0.164	-1.349	-2.679**
	(0.362)	(0.323)	(1.816)	(0.866)
3. Less than college	-0.716**	-0.149	-1.822	-3.672**
	(0.313)	(0.351)	(2.161)	(0.836)
White Men				
1. % all workers = black southern migrant	-0.117	-0.324*	0.669	0.301
	(0.209)	(0.195)	(0.988)	(0.553)
2. Add ln(# in group)	-0.009	-0.466*	-1.128	-0.837*
	(0.332)	(0.258)	(0.989)	(0.532)
3. Less than college	-0.137	0.004	-1.273	-1.128
	(0.378)	(0.226)	(1.854)	(0.862)

Notes: Standard errors are clustered by education-experience cell and are reported in parentheses. Coefficients are converted to elasticities using the expression is $d(\log Y_{ijt})/ d\, m_{ijt} = \beta/(1+ m_{ijt})^2$ where m_{ijt} is the mean percentage increase in labor supply attributable to black southern migration across skill group (i, j, t). The mean m_{ijt} is 3.6 percent for all education groups and 4.3 for groups with less than a college education; thus, the elasticities in rows (1) and (2) are the coefficients multiplied by 0.932, while those in row (3) are multiplied by 0.919. Elasticities that are significant at the 5 percent or 10 percent levels are marked with ** or * respectively.
Rows (1) and (2) are based on regressions with 128 observations (4 education groups x 8 experience groups x 4 years); the regression underlying row (3) has 96 observations. Each regression is weighted by the sample size of the education-experience-time cell used to calculate the mean labor market outcome, and include education, experience and time fixed effects, and their respective interactions.